



INDIANA
DEPARTMENT *of*
EDUCATION

K-8 STEM CERTIFICATION GUIDE

2023-2024

Indiana Department of Education
Office of Teaching and Learning

100 N. Senate Ave.
Indianapolis, IN 46204



STEM in Indiana

[Indiana's Priorities for STEM Education](#) seek to develop a sustainable model for preparing educators to provide high-quality STEM learning opportunities by integrating the disciplines of science, technology, engineering, and mathematics to maximize student learning and achievement. The following are Indiana's Priorities for STEM Education:

1. Refine STEM pedagogy with research-based practices.
2. Develop STEM leaders and educators.
3. Increase access to STEM courses, programs, and resources.

Through these priorities, the Indiana Department of Education (IDOE) supports schools in refining current STEM initiatives and establishing new opportunities to prepare the next generation of thinkers, creators, advocates, and entrepreneurs.

Vision

IDOE will collaborate with educators and schools across the state to implement Indiana's Priorities for STEM Education in an effort to provide access to high-quality, integrated STEM instruction and to increase student participation and achievement related to integrated STEM learning opportunities. In a constantly evolving world, STEM education will prepare all students to contribute to society through innovative problem solving as the next generation of thinkers, creators, advocates, and entrepreneurs.

Mission

Indiana's Priorities for STEM Education seek to develop a sustainable model for preparing educators to provide high-quality, integrated STEM learning opportunities to students, as well as support and provide resources to educators during implementation. This will be achieved through a collaborative process of professional development promoting research-based practices. These priorities will ultimately result in providing students with an engaging, integrated STEM education experience that prepares them for emerging STEM careers and educational opportunities.

STEM Education Defined

Integrated STEM education is the purposeful integration of science, technology, engineering, and mathematics through an engaging and motivating student-centered pedagogy and curriculum. Students are engaged in solving real-world problems using inquiry-based learning, problem-based learning, and engineering design practices, which require critical thinking and collaboration. Highly-trained and well-supported educators are key to providing these experiences to students.

The *STEM classroom* works toward the integration of science, technology, engineering, and

mathematics across content areas. Students pose questions when faced with real-world situations. Investigation, productive struggle, and innovation foster a culture of collaboration and creation. Students are partners in the teaching and learning process by developing skills to reason abstractly, model with science and mathematics, and justify their reasoning to express ideas precisely.

Problem solving is the engagement in a task for which the solution method is not known in advance.¹ The definition includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen.² In the STEM classroom, methods of problem solving could include, but are not limited to, productive struggle, rich tasks, modeling, and inquiry- and project-based learning.

STEM School Certification

Since 2015, Indiana has certified more than 100 schools as leaders in integrated STEM. The STEM Certification process exemplifies the importance of inquiry, problem-based learning, community engagement, student-centered classrooms, and out-of-school STEM activities. Schools achieving STEM Certification have aligned their programs with the mission, vision, and three priorities outlined in Indiana's Priorities for STEM Education.

Evolving into a STEM school environment is much more than introducing a program. For schools, this requires establishing a common local agenda to significantly improve student performance, incorporating STEM education at all levels, engaging local businesses and the community, and often adopting new curriculum and implementing new instructional practices. A school's success depends on prioritizing STEM pedagogy and implementing effective models. IDOE identifies three main levels of STEM school immersion and the components that are necessary to become a STEM model school in the [K-8 STEM Certification Evaluation Rubric](#). The rubric serves as a guide for identifying and creating a STEM environment and ranges from initiating to emerging to innovating. IDOE encourages schools to review the K-8 STEM Certification Evaluation Rubric to determine eligibility **before** applying for STEM Certification.

Eligible entities for K-8 STEM Certification include Indiana schools (i.e., accredited public, public charter, and accredited non-public schools) that serve students in kindergarten through grade eight. The STEM Certification application process requires that schools create a Google Site (or an approved alternative) and use the provided template to document evidence of their STEM implementation. This process is used for any new school to become certified, as well as any that need to renew their certification.

¹ National Council of Teachers of Mathematics (2013)

² OECD (2013) *PISA 2012 Problem Solving Framework*

If a school's completed application includes required evidence for all essential elements and scores a minimum of 54 points, IDOE's STEM Certification Review Team will visit the school to meet with the school's STEM leaders, observe elements outlined in the site visit rubric, and provide feedback regarding the school's certification status. STEM Certification is valid for five years. Schools and programs seeking to retain STEM Certification must reapply following this prescribed timeline and process:

2023-2024 STEM Certification/Recertification Timeline	
Friday, May 26	IDOE publishes the 2023-2024 STEM Certification application materials for elementary and middle schools.
Friday, October 27	STEM Certification applications are due to IDOE.
Wednesday, November 22	IDOE reviews applications.
Friday, December 8	IDOE provides application feedback to schools.
Friday, January 12, 2024	Schools respond to IDOE with additional application evidence, as needed.
Friday, February 2, 2024	IDOE provides any second round of feedback to schools.
Friday, April 12, 2024	IDOE STEM Certification Review Team completes site visits.
Monday, May 6, 2024*	IDOE formally announces the list of 2023-2024 STEM Certified Schools.

*This date remains tentative.

The current list of STEM Certified Schools and STEM Certified Programs, by cohort, can be found [here](#).

K-8 STEM Certification Application Process

Applications are due Friday, October 27.

Step 1: The school leadership team conducts a self-evaluation using the [K-8 IDOE STEM Self-Evaluation Tool](#).

Step 2: The school leadership team schedules a meeting with IDOE's STEM Certification Review Team to discuss self-evaluation, Google Sites evidence guidance, and the application process. Email stemcertification@doe.in.gov to schedule a meeting.

Step 3: If the school leadership team determines a minimum of 54 points with a required score of three on all eleven essential elements on the STEM Certification Evaluation Rubric can be documented, the school leadership team utilizes the Google Sites template (or approved alternative) to showcase evidence of Elements in the STEM Certification Evaluation Rubric.

- Complete this [form](#) to request the official Google Sites template.
- **Please note:** Schools with local technology policies that prohibit the use of Google tools may be approved by IDOE to use an alternative to the Google Sites template, but they must still follow the format prescribed in the Google Sites template. Schools must provide IDOE documentation of any local policy precluding the use of the Google tools.

Step 4: Schools procure an experienced STEM professional/educator with knowledge of the school's mission and vision to evaluate their site using the STEM Certification Evaluation Rubric. **This individual should ensure that all evidence links are accessible to those outside of the organization.**

Step 5: School leadership team submits the Google Site (or approved alternative) using this [form](#) by Friday, October 27.

Step 6: IDOE's STEM Certification Review Team, comprised of a minimum of two IDOE staff members, will review the Google Site (or approved alternative) using the [2023-2024 K-8 STEM Certification Evaluation Rubric](#).

Step 7: IDOE will issue a preliminary score report in response to each completed application. The following are possible next steps based on the preliminary score:

- All schools receiving a score less than 54 points and/or earning less than a score of three on any of the eleven essential elements will have the opportunity to submit additional evidence by Friday, January 12, 2024. Following the review of additional evidence, applications scoring a minimum of 54 points and attaining a required score of three on all eleven essential elements after rescoring will be contacted to schedule a site visit.

- A school earning an initial score greater than 54 points and a score of three on all eleven essential elements is not required to submit additional evidence and will be contacted to schedule a site visit.
- Submissions scoring fewer than 54 points will be designated as *Developing in STEM Certification* and invited to participate in a STEM Certification Learning Series beginning in January 2024.

Note: Schools that apply for **recertification** and earn a score of 54 or greater with a score of three on all eleven essential elements on the preliminary score report will not require a site visit.

Step 8: Members of the school's STEM team will create a short presentation highlighting their STEM journey that they will share with members of IDOE's STEM Certification Review Team during the scheduled site visit. After the presentation from the school's STEM Team, members of IDOE's STEM Certification Review Team will tour the school, utilizing the [K-8 STEM Certification Site Visit Evaluation tool](#). A school must earn all 10 essential site visit elements to be awarded STEM Certification. Schools receiving a score of less than 10 on the essential site visit elements will be designated as Developing and be invited to participate in a STEM Certification Learning Series.

Step 9: IDOE's STEM Certification Review Team will email a final report to school leadership within one week of the site visit.

Step 10: Applications receiving a minimum score of 54 points on the preliminary score report with a required score of three on all eleven essential elements, and points awarded for all 10 Essential Site Visit Elements from the site visit evaluation will be designated as a STEM Certified School by IDOE's STEM School Certification Review team. The designation will be embargoed until the official announcement is made via press release for the 2023-2024 school year.

Required Components of Application

- School information
- Superintendent information
- Principal information
- STEM School Leadership Team Chair contact information
- STEM Mission and Vision Statements
 - Mission statement
 - Vision statement
 - Connection between Mission/Vision and Indiana's Priorities for STEM Education

- STEM School Leadership Team Biographies
- Letter of support from the principal
- Letter of support from the superintendent
- Letter of support from community partner(s)
- Executive Summary (maximum of 1,500 words)
 - School overview
 - Description of STEM Focus/Program
- **Domain 1: Culture**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 2: Curriculum**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 3: Instruction**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 4: Partnerships**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation

Please contact IDOE's Office of Teaching and Learning with any questions regarding the STEM Certification process via email at stemcertification@doe.in.gov.